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SITE INDEX CURVES FOR PLANTATION BLACK LOCUST

CENTRAL STATES REGION

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Black locust (Robinia pseudoacacia L.) was planted very commonly about thirty-five years ago and even prior to that time. More recently there has been a reawakened interest in this species which has resulted in planting it by the millons. What will be the development of this tree on various site qualities?

As a guide, we are fortunate to have these older plantings whose development provides a dependable index to the expected height growth of young plantings on various soils and sites. As a basis, some 170 plots were measured by this Station in 1931 and 1932. From these plots, age and dominant heights have been compiled to provide the attached set of site index curves. In their preparation, an equation was solved based on average dominant heights and corresponding ages. A curve of standard deviation over age and one of coefficient of variation were also prepared, following the technic of Osborne and Schumacher[1] to control the spread of the curves. Proper substitutions in the equation provided this sheaf of curves.

Although few of the stands are undisturbed through 50 years, this age was used for site classification because preliminary computations on the basis of 25 years spread the curves excessively. Using the older age, the data provide for the segregation of seven 10-foot site index curves.

Inspection of the plots spotted on the curves will show a notable thinness of representation in the 30 to 50-year age classes. The lack of plantations of these ages very likely may be traced to the utilization of superior larger plantings on the best sites, and the removal of the short borer-riddled, misshapen stands for firewood on the poorest sites.

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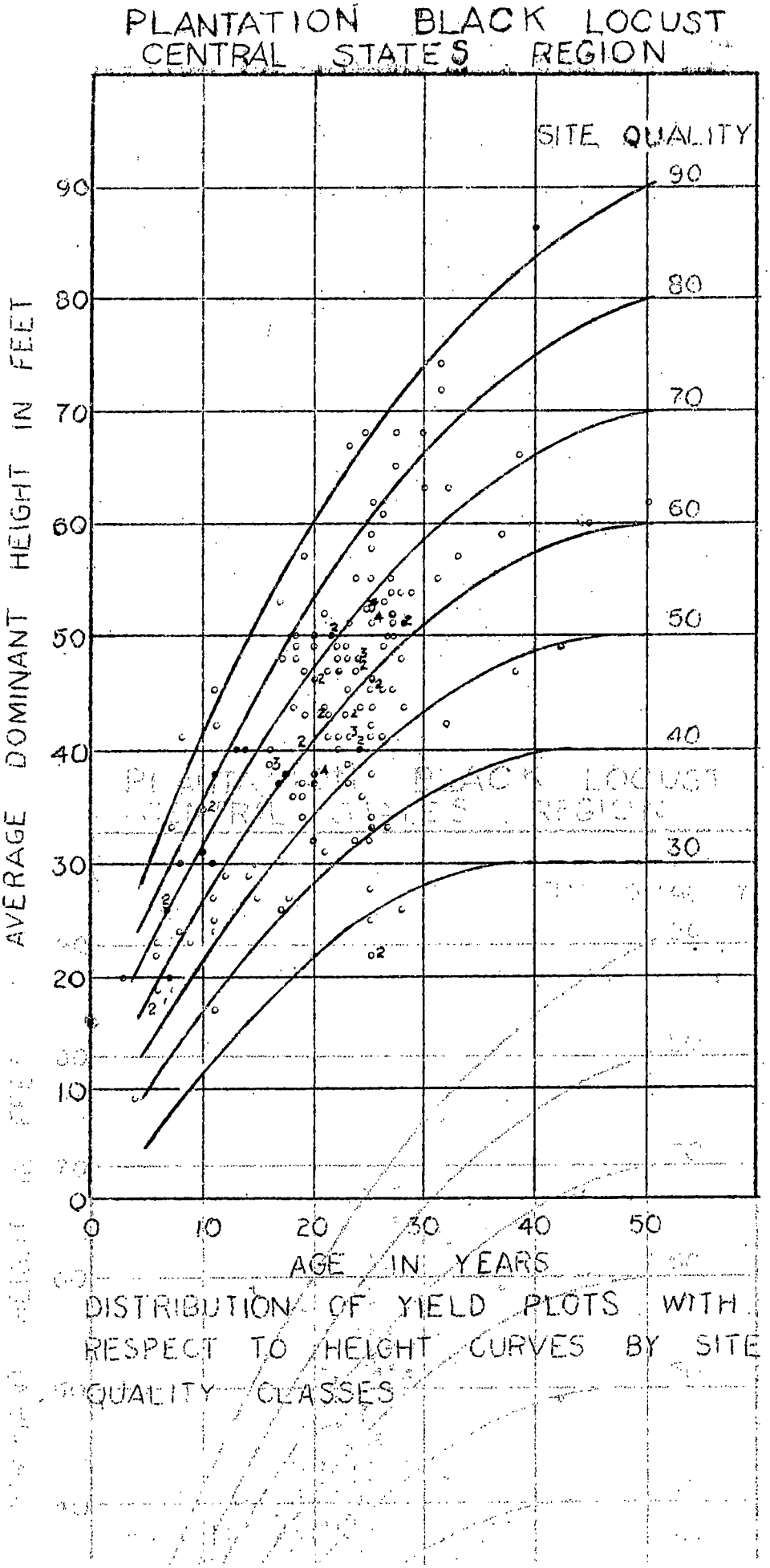
[1] Osborne, James G., and Schumacher, Francis X. 1935. The Construction of Normal-Yield and Stand Tables for Even-Aged Timber Stands. Jour. Agri. Res. Vol. 51 (6): 547-564. Bibl. Graphs.

The plantings on which these curves are based occur over Ohio, Indiana, and Illinois, with a sparse representation from western portions of Kentucky and of Tennessee. These curves may be considered representative of the performance of black locust within this region. Most stands contained a varying amount of infestation with the locust borer (Cyllene robiniae), so that it should be considered a normal condition in black locust plantings in this region.

It should be especially noted that these curves are not suitable for application to stands of sprout growth. Stands of stems originating from extensive well-established locust root systems grow more rapidly and possess habits of development which differ from those of more slowly-growing seedlings.

To use the curves, determine the age and average dominant height of the stand in question. By plotting this height over the appropriate age, the locust stand may be readily identified with respect to the nearest site curve. A projection of its location with respect to this curve forward to 50 years will provide the approximate site index of the plot, and the height to which it may be expected to develop at that age.



DISTRIBUTION OF YIELD PLOTS WITH RESPECT TO HEIGHT CURVES BY SITE QUALITY CLASSES